NOT FOR PUBLIC RELEASE

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION
BOSTON, MASS.

29 January 1948

SUBJECT: Review of Reports on New London Harbor, Connecticut.

TO: Chief of Engineers, Department of the Army, Washington 25, D. C.

SYLLABUS

The Division Engineer does not find evidence of sufficient benefits to justify the expenditures involved in deepening the main channel, enlarging the turning basin, providing breakwaters at the entrance to the harbor, furnishing a marina development at Greens Harbor, or increasing the depth in Shaw Cove, as desired by local interests. He does not recommend any modification of the existing project at the present time.

AUTHORITY

1. This report is submitted in compliance with the following resolution adopted November 30, 1945, by the Committee on Rivers and Harbors of the House of Representatives, United States:

RESOLUTION

"RESOLVED BY THE COMMITTEE ON RIVERS AND HARBORS OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on New London Harbor, Connecticut, contained in Rivers and Harbors Committee Document Numbered 82, Seventy-fourth Congress, Second Session, and previous reports with a view to determining if the existing project should be modified in any way at this time."

2. The report under review was adopted by the River and Harbor Act of August 26, 1937 and was printed in Rivers and Harbors Committee Document No. 82, 74th Congress, 2nd Session. This report was favorable to further improvement to the extent of modifying the existing project to provide a straight channel 33 feet deep to the State Pier and an adjacent maneuvering area to the west with a depth of 23 feet at an estimated cost of $16,400 for new work with maintenance at $600 annually in addition to that then required. By resolution of the Committee of Rivers and Harbors of the

House of Representatives, United States, adopted March 3, 1937, this report was reviewed and was unfavorable to extending the 23-foot maneuvering area.

DESCRIPTION

3. New London Harbor, Connecticut, is on the north shore of Long Island Sound at its eastern end. It is about 47 miles east of New Haven Harbor, Connecticut, and 14 miles east of the mouth of the Connecticut River. The outer harbor, which is comprised of the lower four miles of the Thames River, Winthrop and Shaw Coves, and Greens Harbor, has a width of about 1.5 miles at its entrance, narrows to a general width of 0.5 to 0.7 mile, and has a width of about 0.2 mile near its head where it is crossed by railway and highway bridges.

4. About 2 miles north of its entrance an indentation in the west shore with a maximum width of about 0.5 mile, known as Greens Harbor, has a large area available for anchorage with depths of 6 to 18 feet. Adjacent to the channel additional area is available up to 30 feet in depth. Smaller indentations farther north, also on the west shore, are Shaw and Winthrop Coves.

5. A dredged channel, 33 feet deep at mean low water, leads from Long Island Sound to a naturally deep hole near the head of the harbor adjacent to which a State Pier is located. A dredged channel 23 feet deep along the New London waterfront extends from Fort Trumbull northward into Winthrop Cove. Connected to this channel is Shaw Cove which has been dredged to a depth of 15 feet. Between the main and waterfront channels anchorage area is available with depths of 12 to 27 feet.

6. The mean tidal range is 2.6 feet. Fluctuations in stage due to fresh water discharge are of negligible importance. The harbor is well protected from all except southerly storms. The locality is shown on U. S. Coast and Geodetic Survey Charts 293 and 359 and on the map accompanying this report.

TRIBUTARY AREA

7. The cities of New London, Norwich and Willimantic, together with smaller nearby communities form an important manufacturing center with a

population of approximately 125,000 persons within a radius of 20 miles of New London Harbor. Assessed values in New London, Norwich and Willimantic total some $110,000,000.

8. The southern terminus of the Central Vermont Railway, a subsidiary of the Canadian National Railways connecting with Canadian Lines and serving parts of Massachusetts and Vermont, lies at the Central Vermont Transportation Company's pier at the head of New London Harbor. The main line of the New York, New Haven and Hartford Railroad passes through New London and connects with the waterfront. This line has branches and connections covering most of New England.

9. An excellent network of improved highways radiates from the port area. Steamer lines carry passengers and freight to and from Block Island, Fishers Island and Long Island.

BRIDGES

10. No bridges cross the main harbor proper. There is a railroad bridge over the entrance to Shaw Cove. This bridge is of the swing type having horizontal clearances of 39.1 feet to the left and 45.5 feet to the right and a vertical clearance of 3.7 feet at mean high water. There are two bridges across the Thames River at the head of the harbor. The railroad bridge has a bascule span with a horizontal clearance of 151.5 feet and a vertical clearance of 30.9 feet above mean high water. The highway bridge is fixed with horizontal clearance of 516 feet and vertical clearance of 139 feet above mean high water. This bridge replaces the swing bridge shown in prior reports.

11. The New York, New Haven & Hartford Railroad has applied for and received a permit to replace the existing swing bridge over the entrance to Shaw Cove with a vertical lift bridge having horizontal and vertical clearances of 150 feet and 85 feet, respectively. These clearances are more than adequate for all present and prospective requirements of commercial traffic.

PRIOR REPORTS

12. New London Harbor has been the subject of numerous reports since 1878, as listed below:

Year	Subject	Recommendation	Published Doc.
1878	Boulder Removal	Favorable	AR,C.E.1878,p.397
1888	15-foot Waterfront Channel	"	AR,C.E.1889,p.744
1890	12-foot depth in Shaw Cove	"	AR,C.E.1891,p.833 H.Ex.D.73,51st Cong. 2nd Sess.
1900	23-foot Waterfront and Winthrop Cove Channels	"	AR,C.E.1900,p.1351 H.D.392,56th Cong., 1st Sess.
1903	30-foot channel in Winthrop Cove	Unfavorable	AR,C.E.1904,p.1004 H.D.395,58th Cong., 2nd Sess.
1906	30-foot entrance channel	"	H.Doc.178,59th Cong. 2nd Sess.
1907	15-foot depth in Shaw Cove	Favorable	H.Doc.329,60th Cong. 1st Sess.
1912	15-foot depth in Shaw Cove	Favorable to partial dredging	R&H Comm. Doc.,9, 62d Cong.,2nd Sess.
1913	33-foot entrance channel	Favorable	H.D.613,63d Cong., 2nd Sess.
1932	Main Harbor	Unfavorable	Unpublished
1934	Shaw Cove	"	"
1936	Entrance & Waterfront Channels	Partially favorable	R&H Comm. Doc. 82, 74th Cong.,2nd Sess.
1938	Additional 23-foot maneuvering area	Unfavorable	Unpublished

EXISTING PROJECT

13. The existing project, adopted in 1902 and modified in 1910, 1916 and 1937 provides for:

a. A channel 33 feet deep, generally 600 feet wide, widened at the approach to State Pier, from Long Island Sound to State Pier. The length of this channel is about 3.8 miles.

b. A channel 23 feet deep, 400 feet or more in width, skirting the waterfront of the city. The length of this channel is about 6000 feet.

c. Two branch channels 23 feet deep in Winthrop Cove and east of the Central Vermont Railway Pier, generally 250 feet wide and 1500 feet long, and 100 feet wide and 1000 feet long, respectively.

d. A maneuvering area 23 feet deep, 0 to 450 feet wide, west of the main channel and south of the State Pier.

e. Dredging Shaw Cove to a depth of 15 feet. Length of about 1100 feet.

The present project was completed in 1938.

14. The costs of the existing project to 30 June 1947, were $567,974.19 for new work and $219,029.37 for maintenance, a total of $787,003.56. The total costs of New London Harbor to the Federal Government are $608,774.19 for new work and $219,029.37 for maintenance. The present approved annual maintenance cost is $3,900. Based on experience to date, this estimate has been exceeded and if the trend towards increased costs continues, it will be necessary to increase the estimate.

LOCAL COOPERATION

15. Local cooperation has been required for the present project only to the extent that the State of Connecticut has constructed a modern pier 1000 feet long near the head of the harbor, with approach channels and vessel berths 35 feet deep at a reported cost of $1,000,000. No cash contributions have been made for defraying any part of the cost of Federal improvements.

OTHER IMPROVEMENTS

16. Various local interests have dredged, at their own expense, berths and approach channels connecting with the Government channels.

TERMINAL AND TRANSFER FACILITIES

17. In general, existing facilities for berthing of ships and handling of cargoes have been adequate to handle port traffic in the past. The State Pier has a capacity in excess of that of the present channel with berthing depth of 35 feet. It has been stated that one other terminal of similar capacity is under construction and that two others are in the design stage.

18. Facilities in Shaw Cove are adequate for the traffic that can be accommodated by the depth of the basin and the width of the draw span of the railroad bridge.

COMMERCE

19. The following tables give a comparative statement of yearly freight

and passenger traffic, and the freight for 1946 in detail:

Comparative Statement of Traffic

Year	Tons	Passengers	Year	Tons	Passengers
1939	552,636	77,845	1943	271,757	11,800
1940	690,900	89,457	1944	294,209	13,633
1941	621,011	39,440	1945	298,609	18,027
1942	393,599	17,517	1946	276,459	27,509

Freight Traffic, 1946

Domestic

Coastwise Receipts

	Tons
Products of Agriculture	36,494
Animals and Products	4,462
Anthracite Coal	13,033
Bituminous Coal	18,183
Other Products of Mines	837
Crude Rubber	1,403
Products of Forests	890
Gasoline	17,750
Kerosene	15,577
Fuel Oils	32,048
Cane Sugar	27,912
Manufactures and Miscellaneous	173,235
TOTAL	248,537

Coastwise Shipments

	Tons
Products of Agriculture	196
Animals and Products	617
Asbestos	3,311
Products of Forests	76
Manufactures and Miscellaneous	23,722
TOTAL	27,922

These statistics do not include use of the port by the armed forces, particularly the Navy, which leased the facilities of the State Pier in 1944 and 1945. It is to be expected that with the availability of shipping and the reopening of foreign trade, commerce in this port will recover to at least its prewar volume.

20. Prior to the war commerce in Shaw Cove was remarkably stable, amounting to approximately 22,000 tons a year. During the war it declined appreciably but had recovered to about 17,500 tons in 1946.

VESSEL TRAFFIC

21. The number and size of commercial vessels using New London Harbor are indicated in the following statement of traffic covering the period 1939 to 1943:

TRIPS - INBOUND AND OUTBOUND

DRAFT	1939	1940	1941	1942	1943	1944	1945	1946
29	-	-	1	-	-	-	-	-
26 - 28	1	5	1	1	-	-	-	-
24 - 26	1	6	1	1	-	-	-	-
22 - 24	6	1	2	1	-	-	-	1
20 - 22	16	10	5	2	-	-	-	2
18 - 20	22	19	622	915	1	-	-	1
16 - 18	-	-	2	2	982	388	490	368
- 18	3920	4113	-	-	-	-	-	-
14 - 16	-	-	46	2	9	238	505	451
12 - 14	-	-	99	74	51	43	27	54
- 12	-	-	3361	360	1523	1471	2032	1859
TOTALS	3966	4154	4140	1358	2566	2140	3054	2736

22. In addition to the above there is a fleet of small fishing boats and military and naval craft that make the harbor their home port and for which no record is available. With the availability of shipping, it is expected that the future trend will be to utilize modern ships of greater draft than used heretofore in rebuilding the commerce of the port. Several firms have signified their intention to bring in cargoes of coal and petroleum products in the large colliers and tankers constructed under the wartime shipbuilding program.

DIFFICULTIES ATTENDING NAVIGATION

23. There are no particular difficulties attending navigation in New London Harbor by present commerce. It is anticipated that some difficulty may be found in bringing in the newer type ships. While the depth of the channel at mean low water is barely adequate for ships drawing 32 feet loaded, there is no margin of safety allowed for tides lower than normal, for shoaling in the channel, and for uneven trimming of cargoes carried by the larger ships. These factors are of particular importance in view of the comparatively small range of tides in the harbor. Depths of 35 feet have been justified for similar traffic at Providence and New Haven Harbors, east and west respectively of New London.

24. No satisfactory anchorage area is available for deeper draft ships within the harbor.

25. Smaller vessels and pleasure craft are severely handicapped by the lack of protection from southerly storms.

WATERPOWER AND OTHER SPECIAL SUBJECTS

26. There are no questions of waterpower or flood control pertinent to this report.

SHORELINE CHANGES

27. It is believed that no important shoaling or scouring would occur as a result of the improvements considered.

IMPROVEMENTS DESIRED

28. In order to obtain the views of interested parties concerning the improvement desired, a public hearing was held in New London, Connecticut, on 27 June 1946. Present at the hearing, which was well attended, were representatives of various branches of the City government, the State and surrounding communities, U. S. Coast Guard Marine Inspection, U. S. Coast Guard Academy, the Connecticut Port Survey Commission, the State Water Policy Commission, the Connecticut Development Commission, State Commission of Steamship Terminals, the Propeller Club and the Thames Yacht Club, and various prominent business concerns interested in further development of the port. A record of the hearing, together with exhibits presented, is attached.

29. The improvements desired are tabulated as follows:

a. Deepening of main channel to 35 feet at mean low water.

b. A turning basin 35 feet deep adjacent to main channel.

c. Construction of marina at Greens Harbor.

(1) Combined breakwater and yacht wharf on southerly side of area.

(2) Combined breakwater and pier to northeast of basin.

(3) Dredging of basin to 18 feet in part and to 8 feet in part.

d. Breakwaters at entrance to harbor.

e. Dredging of Shaw Cove to 18 feet and widening of the draw in the railroad bridge.

30. The advocates of the above items presented arguments in support of

their proposals as follows:

a. The request for deepening the channel from 33 feet to 35 feet at mean low water was based upon the proposed use of the harbor by T-2 tankers which were stated to require a 35-foot channel depth.

b. The request for the turning basin or widening of the channel was made on the belief that additional width would be required for turning and navigating T-2 tankers.

c. The construction of a marina at Greens Harbor was proposed by the Propeller Club primarily in the interest of pleasure boating. It was pointed out that the only well-protected basins at New London were not readily accessible to pleasure boats and are principally used for commercial purposes. It was felt that the Federal Government could construct the breakwater and yacht wharf which would thus provide a harbor of refuge for small craft. The northern pier could be used for receipt of lobsters and fish. The southern wharf would have finger piers which, together with the anchorage area in the basin, would accommodate several hundred small boats. The basin would be provided with all necessary facilities.

d. The suggestion for a breakwater at the entrance to the harbor was advanced by commercial interests as being required to prevent damage to shore installations and vessels in the harbor caused by southerly storms. Representatives of yachting interests also spoke in favor of an outer breakwater.

e. The deepening of Shaw Cove to 18 feet was proposed by business interests located on the Cove. The additional depth was requested as being necessary for the accommodation of sea going barges which would permit shipment without the rehandling of cargo and the receipt of coal and petroleum products in larger vessels.

31. There was no offer of local cooperation made in connection with most of the proposed improvements. In the case of the marina construction at Greens Harbor there was some indication that the City of New London and the State of Connecticut might cooperate. Business interests at Shaw Cove offered to increase their facilities in order to utilize the desired increased

depth of the Cove.

SURVEY

32. A sounding and probing survey has been made of Shaw Cove and Greens Harbor. The probings indicate that the materials can be removed by ordinary dredging processes. No survey has been made of the other areas where modifications have been suggested. The map which accompanies this report has been compiled from the latest available information and is believed to represent with reasonable accuracy the existing conditions.

PLAN OF IMPROVEMENT

33. Two plans of improvement are considered in this report. These plans, designated as Plan A and Plan B, are shown on the accompanying map. Plan A comprises all the improvements requested by local interests as enumerated in Paragraph 29. It consists of deepening the main channel to 35 feet at mean low water, a turning basin 35 feet deep adjacent to the main channel, construction of a marina at Greens Harbor, breakwaters at the entrance to the harbor, and dredging of Shaw Cove to 18 feet and widening of the draw in the railroad bridge. Plan B consists of the deepening of Shaw Cove to 18 feet at mean low water.

34. The various items of improvement suggested by the proponents have received consideration and study. Of the proposed items the deepening of Shaw Cove is the only one found to have sufficient benefits to warrant detailed study.

35. Shaw Cove has been previously dredged to a depth of 15 feet at mean low water. The improvement under consideration would provide a depth of 18 feet at mean low water which would be sufficient to accommodate seagoing barges and scows used in transporting petroleum products and miscellaneous products such as scrap metal. The present entrance to the Cove is restricted by the New York, New Haven and Hartford Railroad Bridge which is of the swing type with a channel opening of about 45 feet. This restriction will be eliminated by the construction of a new bridge by the railroad to replace the present bridge which has outlived its useful life. The new bridge will be a vertical lift having horizontal and vertical clearances of 150 feet and

85 feet, respectively. These clearances will permit passage of present and prospective traffic without difficulty.

AIDS TO NAVIGATION

36. The plans of improvement considered would require no additional aids to navigation.

ESTIMATE OF FIRST COST

37. The estimates of first cost of the improvements considered are as follows:

Plan A

a. Deepening of main channel to 35 feet at mean low water

Dredging approximately 1,325,000 cubic yards at $.40 ..... $530,000

b. Turning basin 35 feet deep adjacent to main channel

Dredging approximately 248,000 cubic yards at $1.00 248,000

c. Construction of marina at Greens Harbor

(1) Combined breakwater and yacht wharf on southerly side of area $600,000

(2) Combined breakwater and pier on northeast side of area $500,000

(3) Dredging basin to 18 feet in part and 8 feet in part, dredging approximately 133,000 cubic yards at $1.00 ..... $133,000

d. Breakwater at entrance to harbor

Approximately 878,000 tons of stone at $5.00 ..... $4,390,000

e. Dredging of Shaw Cove to 18 feet at mean low water

Dredging approximately 60,000 cubic yards at $1.25 ..... $ 75,000

Increasing facilities and storage ..... $ 30,000

Total Estimated Cost, Plan A $6,506,000

Plan B

a. Dredging of Shaw Cove to 18 feet at mean low water

Dredging approximately 60,000 cubic yards at $1.25 ..... $ 75,000

Increasing facilities and storage ..... $ 30,000

Total Estimated Cost, Plan B $105,000

38. In the above estimates the dredging quantities are in terms of place measurement and provide for one-foot of allowable overdepth. The prices are based on current price levels and include an allowance for engineering and contingencies and are based on the work being done by contract with disposal of excavated material at sea.

ESTIMATES OF ANNUAL CHARGES

39. The estimated annual carrying charges for the two plans, based upon an assumed life of 40 years for the improvement, are given below:

		Plan A	Plan B
a.	Federal Investment:		
(1)	Total estimated cost of plan	$6,506,000	$105,000
	Estimated cost of increasing facilities and storage at Shaw Cove (Self-liquidating)	30,000	30,000
	Estimated cost of proposed improvement	$6,476,000	$ 75,000
	Local cooperation (See Par. 48)	2,811,500	0
	Corps of Engineers first cost	$3,664,500	$ 75,000
(2)	Total Federal Investment	$3,664,500	$ 75,000
b.	Federal Annual Carrying Charge:		
(1)	Interest at 3% on Item a(2)	$ 109,935	$ 2,250
(2)	Amortization of Item a(2) (40 years at 3%)	48,591	995
(3)	Estimated increase in cost of annual maintenance by Corps of Engineers	10,000	0
(4)	Total Federal annual carrying charge	$ 168,526	$ 3,245
c.	Non-Federal Investment:		
(1)	Funds to be contributed	$2,811,500	0
(2)	Increasing facilities and storage	30,000	30,000
(3)	Total Non-Federal Investment	$2,841,500	$ 30,000
d.	Non-Federal Annual Carrying Charge:		
(1)	Interest at 3-1/2% on Item c(3)	$ 99,452	$ 1,050
(2)	Amortization of Item c(3) (40 years at 3-1/2%)	33,615	355
(3)	Total Non-Federal annual carrying charge	$ 133,067	$ 1,405
e.	Total Annual Carrying Charge:		
(1)	Federal, Item b(4)	$ 168,526	$ 3,245
(2)	Non-Federal, Item d(3)	133,067	1,405
(3)	Total annual carrying charge	$ 301,593	$ 4,650

ESTIMATE OF BENEFITS

40. Deepening of main channel to 35 feet. - The benefits to be derived from the proposed deepening are those obtained through elimination of delays incurred during low water periods. The present authorized depth for the main

channel is 33 feet at mean low water. Based upon traffic which has used the harbor in the past, this depth has proved to be adequate. The advocates for the 35 foot depth state that it will be required in order to permit the harbor to be used by T-2 tankers and the larger "C" type cargo ships. There is now under construction an oil terminal which plans to utilize T-2 tankers for transporting petroleum products to New London. The estimated cost of deepening the channel from 33 to 35 foot depth is $530,000 and the carrying charges would be about $22,900. In view of the fact that the 33-foot depth would permit use of T-2 tankers during most tidal stages, it is not believed that sufficient delays will be encountered to justify an annual carrying charge of about $22,900.

41. Turning basin 35-feet deep adjacent to main channel. - The advocates of the 35-foot turning basin base their request upon the proposed use of T-2 tankers and the larger "C" type cargo ships which they state will make necessary a turning basin for such vessels. At the present time the amount of need for the turning basin cannot be exactly determined. In addition to the 600 foot wide, 33 feet deep main channel, there is another area adjacent to the channel of lesser natural depth but entirely adequate to permit the turning of the tankers after their cargo has been discharged. Consequently, further consideration of this item is not believed justified until traffic with the larger type vessels has increased sufficiently to demonstrate more definitely the need for the turning basin 35 feet deep.

42. Construction of marina at Greens Harbor. - The marina at Greens Harbor was proposed in the interest of pleasure boating and the benefits to be obtained are those concerned with such boating. The suggested plan is entirely too broad in scope and far too costly to be constructed entirely on the justification of benefits to be derived from pleasure boating. When it was originally proposed, it was felt that both the City of New London and the State of Connecticut could make a contribution towards the cost of the project. However, further study has shown that the costs involved are higher than anticipated and there is small likelihood of local interests being able to furnish the indicated contribution required. Consequently, local interests

feel that it is advisable to defer action for the present.

43. Breakwaters at the entrance to the harbor. - Commerical interests advocated the construction of a breakwater at the harbor's entrance. It was stated that southerly storms cause considerable damage to shore properties and to vessels in the harbor. Local interests have indicated that a breakwater extending from Cormorant Rock towards Southwest Ledge and from Southwest Ledge to Black Ledge to Pine Channel is desired. Its cost of about $4,390,000 and carrying charges of about $205,000 would be far in excess of the benefits to be secured by its construction.

44. Dredging of Shaw Cove to 18 feet and widening of the draw in the railroad bridge. - The benefits resulting from the work of improvements under Plan B would be those in connection with the use of larger size scows and barges employed in the commercial activities in the cove. One company, engaged in the fuel business, states that during 1947 it received about 19,000 tons of coal and fuel oil of which about 7,400 tons of coal and 10,000 tons of fuel oil and kerosene were received by water. Under present conditions receipt of coal and oil is restricted to barges or tankers drawing about 13 feet. After the improvement, barges or tankers with a draft of 16 feet could be used. This would result in a saving of not more than $.10 a ton. This company states the quantity of fuel oil received can be doubled after the improvement is completed. On this basis the volume would be about 27,000 tons with a saving of about $2,700 in transportation costs.

45. At the time of the hearing concerning the improvement the only other company using the water facilities of the cove was a dealer in scrap metal, who presented figures indicating that a saving in transportation costs of $2.42 a ton would result if the cove were deepened to 18 feet at mean low water. These savings were based upon all water transportation in seagoing barges as opposed to the then current practice of using deck scows for a portion of the distance and rail transportation for the remainder. Since that time conditions in the scrap market have changed so that, with the short supply now existing, the company employs rail transportation entirely as being preferable to water transportation. Since this condition may continue for some time,

it is not possible to estimate future savings that might accrue to this company.

46. In view of the foregoing the benefits arising from the further deepening of Shaw Cove do not appear to be sufficient to warrant the expenditure of Federal funds for this purpose at this time.

COMPARISON OF BENEFITS AND COSTS

47. The estimated annual benefits of $2,700 for Plan B and the estimated annual charges of $4,650 for Plan B give a ratio of benefits to charges of 0.58 to 1.

LOCAL COOPERATION

48. If Plan A was economically justified, the deepening of the channel, the turning basin and the deepening of Shaw Cove would be in the interest of general navigation and no cash contribution would be required. Increased facilities and storage at Shaw Cove are considered to be self-liquidating and are not improvements for navigation, and the cost thereof should be borne by local interests. At least half of the benefits for the other improvements would be local in character and as such the minimum contribution would be one-half the cost, or $2,811,500.

49. If favorable consideration were to be given to the deepening of Shaw Cove, it would be necessary for local interests located on the cove to give assurances that their docking facilities on the cove would be improved so as to accommodate vessels utilizing the increased depth. In addition, the present storage capacity of the fuel company would have to be about doubled in order to utilize larger sized tankers economically. It is probable that such conditions would be met.

ALLOCATION OF COSTS

50. The initial cost of the improvement considered under Plan B and the cost of operation and maintenance would be allocated between the Corps of Engineers and local interests as follows:

	Initial Cost	Maintenance Cost
Corps of Engineers	$ 75,000	0
Local Interests	30,000	0
	$105,000	0

DISCUSSION

51. The existing depths in New London Harbor have proved adequate for traffic in the past. The need for additional depth in the main channel and

an enlarged turning basin has not developed for present traffic. With the probable use of T-2 tankers and possibly the large "C" type cargo ships, it may be that delays will occur during certain tidal conditions. However, unless the traffic in such vessels is large it is unlikely that the savings resulting from the elimination of delays will be of sufficient magnitude to warrant the expenditure required for increasing the depth.

52. The facilities for small boats at New London are not extensive and the development of a marina would be beneficial. The one proposed at the hearing was too expensive and the benefits resulting therefrom too intangible to warrant the expenditure of Federal funds. In addition local interests would be unable to make the substantial cash contribution that would be required. A lesser development at the desired site would be exposed to southerly storms and winds and probably would not be desirable without breakwater protection which would be too expensive.

53. The harbor at New London is long and narrow and is exposed to southerly winds which have a twenty mile stretch across Long Island Sound in which to build up. As a result damage to shore properties, waterfront facilities and shipping has occurred yearly. Considerable expenditures have been made for the beach developments at the harbor entrance. The proposed breakwater stretching from Cormorant Rock toward Southwest Ledge and from the ledge through Black Ledge to Pine Channel would afford protection to a larger area, including the beaches. This location has the objections, however, of very large cost of construction and, being about 3 miles from the harbor waterfront, of permitting considerable wave action to be generated in the reach between. Breakwaters located on both sides of the channel at Quinnepeag Rocks could be constructed at lesser cost but still considerably in excess of ascertainable benefits. Such breakwaters, which would not protect the beaches, would possibly be subject to objection by owners of shore front property at this location.

54. The principal advocate of deepening Shaw Cove is a fuel dealer whose storage capacity is geared to delivery in tankers of about 5,000 barrel capacity. If the Cove were deepened to permit use of 10,000 barrel tankers

as proposed it would be necessary to at least double the present storage capacity. However, the savings through use of 10,000 barrel tankers would not be commensurate with the costs involved in the dredging and additional construction. The probable advent of T-2 tankers at New London will introduce a new element in the conditions existing at New London, the effects of which cannot be projected with certainty at this time.

COORDINATION WITH OTHER AGENCIES

55. The Fish and Wildlife Service was informed of the hearing and replied that the interests of that Service would not appear to be seriously affected by the work under consideration. Local interests requested postponement of the submission date of the report early in 1947 in order to study the situation and secure data in support of the improvements. As no information had been received by the fall of 1947, inquiry was made of local interests and as a result thereof a number of communications were received advocating the various improvements. However, there was little concrete evidence justifying the improvement as most of the reasons advanced were either too intangible or insufficient to warrant the large expenditures involved.

CONCLUSION

56. The evidence presented does not demonstrate that the benefits to be secured by the desired improvements are sufficient to warrant the large expenditures involved.

RECOMMENDATION

57. In view of the foregoing further modification of the existing project at New London is not recommended at this time.

R. G. MOSES
Brigadier General, U. S. Army
Division Engineer

2 Incl.
#1 - Plate No. 1
#2 - Hearing, in dupl.